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EXAMINER

RAO, ANAND SHASHIKANT

ART UNIT PAPER NUMBER

2613

DATE MAILED: 05/03/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/838,459

Applicant(s)

LEE, JUNGWOOD

Examiner

Andy S. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Specification

1. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-10, and 11-21 rejected under 35 U.S.C. 102(e) as being anticipated by Hui.

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Hui discloses a method for adjusting a target bit rate for a frame (Hui: column 3, lines 20-47), said method comprising the steps of: determining a picture quality measure of a current frame (Hui: column 8, lines 20-37) for a particular frame type (Hui: column 5, lines 58-67; column 6, lines 1-7); determining a picture quality measure for each of a plurality of immediately previous frames corresponding to said frame type of said current frame (Hui: column 9, lines 47-67); computer an average picture quality measure from said quality measures (Hui: column 10, lines 9-25) of said plurality of immediately previous frames (Hui: column 10, lines 60-66); computing the difference between the average picture quality measure and the picture quality measure of the current frame for producing a resultant value (Hui: column 12, lines 1-13); comparing the resultant value to a threshold value for producing a comparing result (Hui: column 11, lines 40-60); and adjusting target bit rate in response to said comparing result (Hui: column 12, lines 1-25), as in claim 1.

Regarding claims 2-4, Hui discloses that the frame types are I, B, P frame (Hui: column 9, lines 60-67), as in the claims.

Regarding claims 5-6, Hui discloses that reducing and increasing the target bit rates (Hui: column 10, lines 30-67), as claimed.

Regarding claims 7-9, Hui discloses that the picture quality measure is a JND, PSNR, or MSE measure (Hui: column 7, lines 45-55; column 12, lines 1-14), as in the claims.

Regarding claim 10, Hui discloses that the current frame is considered one of said plurality of plurality of immediately previous frames for computing said average picture quality measure (Hui: column 12, lines 22-55), as in the claims.

Hui discloses an apparatus for encoding an input image sequence (Hui: figure 3) having at least one input frame (Hui: column 5, lines 58-67), wherein said frame is partitioned into at least one block (Hui: column 6, lines 8-10), said apparatus comprising: a block motion compensator for computing a motion vector for the block and generating a predicted image using said motion vector (Hui: column 6, lines 10-20); a transform module for applying a transformation to a difference signal between the input frame and said predicted image, where said transformation produces a plurality of coefficients (Hui: column 6, lines 22-34); a quantizer for quantizing of said plurality of coefficients with a quantizer scale (Hui: column 6, lines 43-55); and a controller for adjusting target bit rate for a current frame in response to (Hui: column 12, lines 1-25) comparing the difference between the picture quality measure of the current frame and the average picture quality measure of a plurality of immediately previous frames corresponding to a frame type (Hui: column 12, lines 1-13; column 5, lines 55-67) to a threshold value (Hui: column 11, lines 40-60); and a coder for coding said plurality of quantized coefficients (Hui: column 5, lines 50-55), as in claim 12.

Regarding claims 13-15, Hui discloses that the frame types are I, B, P frame (Hui: column 9, lines 60-67), as in the claims.

Regarding claims 16-17, Hui discloses that reducing and increasing the target bit rates (Hui: column 10, lines 30-67), as claimed.

Regarding claims 18-20, Hui discloses that the picture quality measure is a JND, PSNR, or MSE measure (Hui: column 7, lines 45-55; column 12, lines 1-14), as in the claims.

Regarding claim 21, Hui discloses that the current frame is considered one of said plurality of plurality of immediately previous frames for computing said average picture quality measure (Hui: column 12, lines 22-55), as in the claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hui in view of Sethuraman et al., (hereinafter referred to as "Sethurdaman").

Hui discloses a method for adjusting a target bit rate for a frame (Hui: column 3, lines 20-47), said method comprising the steps of: determining a picture quality measure of a current frame (Hui: column 8, lines 20-37) for a particular frame type (Hui: column 5, lines 58-67; column 6, lines 1-7); determining a picture quality measure for each of a plurality of immediately previous frames corresponding to said frame type of said current frame (Hui: column 9, lines 47-67); computer an average picture quality measure from said quality measures (Hui: column 10, lines 9-25) of said plurality of immediately previous frames (Hui: column 10, lines 60-66); computing the difference between the average picture quality measure and the picture quality measure of the current frame for producing a resultant value (Hui: column 12, lines 1-13); comparing the resultant value to a threshold value for producing a comparing result (Hui: column 11, lines 40-60); and adjusting target bit rate in response to said comparing result (Hui: column

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12, lines 1-25), as in claim 11. However, Hui fails to disclose that the method is on a computer readable medium having stored thereon a plurality of instructions including instructions which, when executed by a processor, causes the processor to perform the method, as in the claim.

Sethuraman discloses that it is known to implement a coding method is on a computer readable medium having stored thereon a plurality of instructions including instructions which, when executed by a processor, causes the processor to perform the method (Sethuraman: column 8, lines 30-52), in order to make more efficient use of processing resources (Sethuraman: column 2, lines 30-50). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in the art to implement Hui's coding method on a computer readable medium having stored thereon a plurality of instructions including instructions which, when executed by a processor, causes the processor to perform the method as shown by Sethuraman, in order to make more efficient use of processing resources. The Hui coding method, as implement in software stored on a computer medium as shown by Sethuraman, has all of the features of claim 11.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Vetro discloses an adaptable bitstream video delivery system.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (703)-305-4813. The examiner can normally be reached on Monday-Friday 8 hours.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S. Kelley can be reached on (703)-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andy S. Rao
Primary Examiner
Art Unit 2613

ANDY RAO
PRIMARY EXAMINER

asr
April 29, 2004